

**CANYONS OF THE ANCIENTS NATIONAL MONUMENT  
BUREAU OF LAND MANAGEMENT**

**ENVIRONMENTAL ASSESSMENT  
CO-800-2008-035 EA**



**LIVESTOCK GRAZING PERMIT RENEWAL  
Cross Canyon (#08007) and Cross Canyon–Utah (#08001)**

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## **I. INTRODUCTION/PURPOSE AND NEED**

### **INTRODUCTION**

The livestock grazing permittee, has made application to renew the existing term grazing permit for the Cross Canyon (#08007) and Cross Canyon-Utah (#08001) grazing allotments (Map 1). The Allotment is located within the Bureau of Land Management (BLM), Canyons of the Ancients National Monument (Monument). The Cross Canyon-Utah Allotment is located in Utah within the BLM Monticello Field Office and is not within the Monument. Grazing administration of the Cross Canyon-Utah Allotment was delegated to the BLM Colorado through a Memorandum of Understanding (MOU) between the BLM Moab District, Utah and the BLM Montrose District, Colorado. This MOU was approved in 1982. Therefore, all grazing administration to include the issuance or re-issuance of term grazing permits is to be executed by the BLM Colorado.

The Monument is currently in the process of finalizing its first Resource Management Plan (RMP). Through this planning effort, the BLM is working collaboratively with all interested parties to identify the management decisions that are best suited to local, regional, and national needs and concerns.

### **PURPOSE AND NEED**

An interdisciplinary team developed this environmental assessment (EA) for the purpose of analyzing potential site-specific impacts on resources that would result from issuing a new term grazing permit for livestock grazing in the Cross Canyon and Cross Canyon-Utah Allotments.

This permit is needed to authorize the applicant permittee to continue livestock grazing on public lands within both the Cross Canyon and Cross Canyon-Utah Allotments, address management concerns for public lands that are failing to achieve BLM Standards for Public Land Health for both Colorado and Utah, assure protection of objects of historic and scientific interest specified in the Monument proclamation, and to comply with the 1985 San Juan/San Miguel Resource Management Plan and the 2008 Monticello Field Office Resource Management Plan.

### **Public Scoping**

On August 4, 2008 a scoping letter was sent to all interested parties including state agencies, local county governments, environmental organizations and the grazing applicant. The purpose of the scoping letter was to help identify any concerns or issues the public may have in renewing the term grazing permit for these allotments. The scoping letter requested that all comments or concerns be provided by August 30, 2008. Subsequently, the Monument received comments from the grazing applicant, Montezuma County Rangeland Stewardship Committee, Montezuma County Board of Commissioners, and the Dolores County Board of Commissioners.

A field trip to the Cross Canyon Allotment was conducted on September 4, 2008 in order to discuss current grazing management, existing resource conditions and to further identify resource issues and concerns. The field trip was attended by the Monument Manager, BLM resource specialists from the Dolores Public Lands Office, the grazing applicant, and representatives from Montezuma County, San Juan Citizens Alliance and Great Old Broads for Wilderness. During the field trip open dialogues on issues related to grazing management, upland range conditions,

riparian conditions, wilderness study areas and cultural resources within the allotments were discussed. Also discussed were potential changes to existing grazing management that would be analyzed in the environmental assessment. Individuals and organizations attending the field trip did not identify any additional issues or concerns.

## **BLM STANDARDS FOR PUBLIC LAND HEALTH**

### **Colorado Allotment (#08007)**

In 2008, a BLM interdisciplinary team was assembled to determine if the Cross Canyon Allotment was meeting the BLM Standards for Public Land Health developed for Colorado (standards) (43 CFR 4180.2(c)). Information including the 2001 Rangeland Health Assessment, proper functioning condition assessments for both lotic (i.e., streams) and lentic (i.e., springs) riparian areas, rangeland trends, vegetation production and water quality data were considered in determining if the five standards are being achieved or not achieved. These five standards include 1) upland soils; 2) riparian systems; 3) healthy, productive plant and animal communities; 4) special status, threatened and endangered species; and 5) water quality. An explanation of these standards is provided in Appendix A and is discussed in more detail in the appropriate Affected Environment/Environmental Consequences sections of this EA.

Table 1 summarizes the interdisciplinary team's determinations whether the allotment is achieving the standards, along with causal factor(s). Supporting documentation of the interdisciplinary team's determinations is provided in this EA and is available by request from the Dolores Public Lands Office.

Table 1. Summary of existing determinations and their causal factor(s) for standards within Allotment.

<b>Standards</b>	<b>Determinations</b>	<b>Causal Factor(s)</b>
Standard 1 – Upland Soils	Making Significant Progress Towards Achieving	Livestock Grazing Noxious weed infestations on adjacent private lands
Standard 2 – Riparian Systems	Not Achieved	Livestock Grazing Noxious weed infestations on adjacent private lands
Standard 3 – Healthy, Productive Plant and Animal Communities.	Making Significant Progress Towards Achieving	Livestock Grazing Noxious weed infestations on adjacent private lands
Standard – 4 Special Status, Threatened and Endangered Species	Making Significant Progress Towards Achieving	Livestock Grazing Long-Term Impacts of past upland management
Standard 5 – Water Quality	Achieved	N/A

### Utah Allotment (#08001)

In 2008, a BLM interdisciplinary team was assembled to determine if the Cross Canyon-Utah Allotment was meeting the BLM Standards for Public Land Health developed for Utah (standards) (43 CFR 4180.2(c)). Information including proper functioning conditions assessments for both lotic (i.e., streams) and lentic (i.e., springs) riparian areas, rangeland trends, and water quality data were considered in determining if the four standards are being achieved or not achieved. These four standards include 1) upland soils; 2) riparian and wetland areas; 3) desired species; and 4) water quality. An explanation of these standards is provided in Appendix B and is discussed in more detail in the appropriate Affected Environment/Environmental Consequences sections of this EA.

Table 2 summarizes the interdisciplinary team's determinations whether the Cross Canyon-Utah Allotment is achieving the standards, along with causal factor(s). Supporting documentation of the interdisciplinary team's determinations is provided in this EA and is available by request from the Dolores Public Lands Office.

Table 2. Summary of existing determinations and their causal factor(s) for standards within both Cross Canyon–Utah Allotment.

<b>Standards</b>	<b>Determinations</b>	<b>Causal Factor(s)</b>
Standard 1 – Upland Soils	Not Achieved	Livestock Grazing Historic Grazing
Standard 2 – Riparian and Wetland Areas	Not Achieved	Increased water from agricultural practices upstream Historic Grazing Livestock Grazing
Standard 3 – Desired Species	Not Achieved	Livestock Grazing Historic Grazing
Standard 4 – Water Quality	Not Achieved	Excess Salinity

## **CONFORMANCE WITH BLM LAND USE PLANS, PRESIDENTIAL PROCLAMATION AND INTERIM GUIDANCE**

### **Colorado Allotment (#08007)**

The Proposed Action and alternative described below for the Allotment are subject to the San Juan/San Miguel RMP, approved September 1985 and the Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado. BLM finds both alternatives to be in conformance with the resource objective that livestock grazing must be managed to maintain or improve the vegetation component of the ecosystem, enhance the resource values of the area and permit a balanced mix of uses to ensure sustained yield.

Additionally, both alternatives have been reviewed for conformance with the Presidential Proclamation, signed June 9, 2000, designating the Monument. The Monument was designated to protect its objects of scientific and historic interest (i.e., archaeological, geological and biological). Potential impacts to these objects are analyzed in this document or, if not impacted, were omitted. Furthermore, the proclamation addresses livestock grazing by stating that “laws, regulations, and policies followed by the BLM in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument”

Interim management guidance for the Monument is provided by both the BLM Washington Office and the Colorado BLM State Director. This guidance was developed to supplement the San Juan/San Miguel RMP, until completion of the Monument’s first RMP. This guidance directs BLM to continue permitting livestock grazing, pursuant to the terms of existing permits and leases; that appropriate grazing management practices should be followed to protect rangeland resources and ensure compliance with BLM Colorado’s Standards and Guidelines, and administrative actions be implemented under existing regulations to assure compliance with existing permit and lease requirements. Both alternatives are in conformance with these interim guidelines.

### **Utah Allotment (#08001)**

The Proposed Action and alternative described below for the Cross Canyon-Utah Allotment are subject to the 2008 Monticello Field Office RMP and the Standards for Public Land Health and Guidelines for Livestock Grazing Management in Utah. BLM finds both alternatives to be in conformance with the resource objective that livestock grazing must be managed to maintain or improve the vegetation component of the ecosystem.

## **RELATIONSHIPS TO STATUTES, REGULATIONS, OR PLANS OF OTHER GOVERNMENTAL AGENCIES**

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR 1500-1508), Chapter V. The Proposed Action and No Grazing Alternative described below are consistent with other federal, state, and local laws, regulations, and plans to the maximum extent possible.

The Montezuma County, Colorado Comprehensive Plan, adopted January 6, 1997, states that “declines in federal grazing will result in declines in ranching and agriculture, which will result in declines in privately maintained open space and wildlife” (Montezuma County 1997). Furthermore, the County plan states that “such declines are counter to County policies in support of multiple-use, economic diversity, cultural heritage, healthy and productive landscapes, and collaborative problem solving” (Montezuma County 1997). Following these policy determinations, BLM finds the Proposed Action alternative consistent with the Montezuma County Comprehensive Plan and the No Grazing Alternative not consistent.

BLM finds the Proposed Action and No Grazing Alternative consistent with the Federal Land Policy and Management Act (FLPMA), Public Range Improvement Act (PRIA), Taylor Grazing Act (TGA) and BLM grazing regulations under 43 CFR 4100. FLPMA sets the basic standard that public lands shall be managed for “multiple use” and “sustained yield.” (FLPMA § 102 (a)(7), 43 U.S.C. § 1701 (a)(7)). FLPMA defines “multiple use” as “harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output” (43 U.S.C. § 1702(c)).

The TGA enacted the following objectives: “To stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement and development, to stabilize the livestock industry dependent upon the public range, and for other purposes” (48 Stat. 1269). PRIA establishes as the goal of managing public rangelands to improve the range condition so they become as productive as feasible except where the land use planning process required pursuant to section 202 of [FLPMA] determines otherwise or the Secretary determines, and sets forth his reasons for determination, that grazing uses should be discontinued (either temporarily or permanently) on certain lands (43 U.S.C. 1903 (b)).

The Proposed Action is also consistent with 43 CFR 4130.2(a) which states, in part, “grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the BLM that are designated as available for livestock grazing through land use plans.” Last, analysis within this EA is made in accordance with regulations 43 CFR 4180, Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.



## II. PROPOSED ACTION AND ALTERNATIVE

### ALTERNATIVE A: PROPOSED ACTION

Under this alternative, BLM would reissue the term grazing permit for the Cross Canyon and Cross Canyon-Utah Allotments to the applicant for a time period of ten years. Livestock grazing would occur during the seasons of use, with the management flexibility outlined below, and with the number of AUMs, identified in the table below:

Allotment	Livestock Numbers	Kind	Begin Period	End Period	Percent Public Land	Type Use	AUMs
Cross Canyon	300	Cattle	12/1	2/28	97	Active	861
Cross Canyon-Utah	300	Cattle	3/1	4/27	90	Active	515
	300	Cattle	4/28	5/31	97	Active	325

Implement the following grazing management systems described below:

- Implement a rest rotational grazing system in both allotments with the intent to provide for critical spring growing season rest from grazing every other year for the McLean Basin, Lower Cross, Squaw Canyon and Papoose Canyon Pastures within the allotments. The following is an example of the above described grazing rotation:

YEAR 1	TREATMENT	YEAR 2	TREATMENT
Lower Cross Pasture	Graze	Squaw Canyon Pasture	Graze
McLean Basin Pasture	Graze	Papoose Canyon Pasture	Graze
Squaw Canyon Pasture	Rest	Lower Cross Pasture	Rest
Papoose Canyon Pasture	Rest	McLean Basin Pasture	Rest

- As a guideline limit the maximum amount of grazing time within the Squaw Canyon and Papoose Canyon Pastures to 50 days and the maximum amount of grazing time within the McLean and Lower Cross Pastures to 45 days.
- Implement a rest rotational grazing system that allows for critical spring growing season rest when possible on the Upper Cross, Cahone and Middle Cross Pastures.

### Grazing Management Flexibility

- Flexibility will be maintained to annually adjust the grazing rotations, livestock numbers and/or periods of use in order to address existing resource conditions, annual precipitation and forage conditions.

### Actions Common to the Proposed Action

- In cooperation with the permittee, BLM would construct approximately 100 yards of new gap fence on public lands within the Cahone Wilderness Study Area located in T.39N., R.19W, Section 14, SW1/4. This gap fencing would be constructed across the mouth of Dove Creek Canyon and across the upper portion of the Cross Canyon drainage. This gap fencing would create two new pastures within the upper portions of the Allotment by

splitting the Upper Pasture into three smaller pastures. These additional pastures would allow flexibility for implementing a more intensive grazing system for the purpose of improving riparian conditions in both the upper portions of Cross Canyon and Cahone Canyon by allowing for periodic rest and/or deferment from grazing.

- In cooperation with the permittee, BLM would construct 6 new livestock reservoirs in the allotment (Map 2). Of the six new proposed reservoirs three are proposed in existing Wilderness Study Areas (see Recreation/Wilderness Study Areas Affected Environment).
- The intent of these proposed reservoirs is to improve livestock distribution in the uplands within the allotment in order to reduce the amount of impacts to riparian areas and lead to improved grazing practices.

The grazing management system detailed above would modify the current grazing system by increasing the amount of critical growing season rest (March through May) from 1 year out of every 3 years to every other year on the Mclean Basin, Lower Cross, Squaw Canyon and Papoose Canyon pastures within the allotment.

In addition, the proposed grazing system and fencing would also provide flexibility to provide for critical spring growing season rest on the Upper Cross, Cahone and Middle Cross Pastures. Currently the existing grazing system does not allow flexibility for critical growing season rest.

## **ALTERNATIVE B: NO GRAZING**

Under this alternative, the applicant would not be reissued a term grazing permit for the Cross Canyon and Cross Canyon-Utah Allotments. As a result, no livestock grazing would occur on this allotment.

## **III. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES**

### **GENERAL SETTING**

The Cross Canyon Allotment (#08007) is located west of U.S. Highway 491, bounded on the west by the Utah state line and lies north of the Ute Mountain Reservation. This allotment consists of approximately 29,528 public acres encompassing Ruin Canyon, Cow Canyon, Cahone Canyon and Papoose Canyon drainages which are the major drainages within the allotment. Approximately 55% of the public acres within this allotment are within Montezuma County, Colorado and 45% are within Dolores County, Colorado.

The Cross Canyon-Utah Allotment (#08001) is located in San Juan County, Utah and adjoins the Cross Canyon Allotment just to the east across the Utah-Colorado state line. This allotment consists of approximately 10,240 public acres and 660 acres of Utah State lands and encompasses portions of Squaw Canyon and Papoose Canyon, which are the major drainages within the allotment.

Both allotments have very similar biotic and abiotic characteristics (e.g. climate, physiography, soils, vegetation and wildlife) and land uses are similar. The landscape's primary historic uses include livestock grazing, cultivated agriculture, and oil and gas resource development.

## **CURRENT GRAZING MANAGEMENT**

The existing grazing permit authorizes grazing of 300 cattle on the Cross Canyon Allotment from December 1<sup>st</sup> through February 28<sup>th</sup> and from April 28<sup>th</sup> through May 31<sup>st</sup> every year for a total of 1,183 AUMs. This permit also authorizes grazing of 300 cattle on the Cross Canyon-Utah Allotment from March 1<sup>st</sup> through April 27<sup>th</sup> every year for a total of 522 AUMs.

The Cross Canyon Allotment is currently divided into six separate pastures (McLean Basin, Lower Cross, Middle Cross, Upper Cross, Cahone and Squaw Point) using a combination of existing fence and natural topography (rimrock ledges and steep talus slopes) which act as physical barriers to livestock movement. The Cross Canyon-Utah Allotment has no interior fencing and functions as a single pasture referred to as the Squaw/Papoose Canyon Pasture. Since both allotments are permitted to the same livestock operator, they have been combined for the purpose of increasing annual flexibility, implementing a more intensive grazing system that uses all the pastures and allows for regular rest and deferment from grazing.

Prior to 1987, grazing management did not provide for rest or deferment and season long grazing occurred. In 1987, the grazing permit was transferred to the current permittee who then voluntarily reduced the grazing time by 3 months between 12/1 - 2/28 in most years. This action was implemented in order help improve existing resource conditions within the allotment.

In 1998, further grazing management changes were implemented in cooperation with the permittee. These changes implemented a more intensive grazing system using the existing pastures to provide for regular rest and deferment from grazing during the spring growing period. The intent of this grazing system was to provide rest from grazing during the critical spring growing season at least one year out of every three years. Since 1998, grazing management on both allotments has provided more frequent rest during the critical growing season.

## **CONSIDERATION OF PERMITTED GRAZING USE AND ACTUAL GRAZING USE**

Upon review of actual use records for livestock grazing on the Cross Canyon and Cross Canyon-Utah Allotments, it was determined that differences exist between the number of active permitted use AUMs and average actual use AUMs. The active permitted use for both allotments combined is 1,705 AUMs. The average actual use by the current permittee for both allotments from 1988 to the present is 858 AUMs. The difference in AUMs between the active permitted use and average actual use is a reflection of annual adjustments in livestock numbers due to drought conditions, annual fluctuations in forage amounts and reduced livestock grazing use implemented through annual grazing agreements. This information was used to better analyze the impacts of livestock grazing on resource conditions within the allotments.

## **VEGETATION**

### **AFFECTED ENVIRONMENT**

The Cross Canyon Allotment is 29,528 acres in size. Cross Canyon, Ruin Canyon, Squaw Canyon, Papoose Canyon, McLean Basin and their associated mesa tops form the majority of this allotment. Parts of Squaw and Papoose Canyons are in Utah and are managed as part of the Cross Canyon Allotment. The elevation of the mesas along the canyon rims ranges from approximately 6,400 to 6,900 feet and the lowest elevation in the canyon bottom is

approximately 5,300 feet. The mesa tops have deep, productive, sandy-loam soils derived from aeolian deposited sands. The canyons dissect the mesas, cutting through Dakota and Morrison geologic formations, exposing extensive outcrops of Dakota sandstone and rocky slopes of mixed sandstone and shale deposits. The canyon slope soils are mixed, shallow to deep, colluvium and alluvium derived from the sandstone and shale deposits of the Morrison formation. The canyon bottoms are fairly wide in the lower part of the allotments, up to approximately 1,000 feet, but are narrower in the upper portion and the other canyons. Soils in the canyon bottoms are, for the most part, deep alluvial soils in floodplains and drainage-ways.

Average precipitation measured in Cortez, Colorado (approximately 10 miles to the southeast at an elevation of 6,210 feet) is 13 inches, based on 74 years of record. Over the last 10 years the average precipitation has been 11 inches. Average precipitation in the last five years is 12 inches (Western Regional Climate Center, February 9, 2009).

The dominant vegetation type is pinyon and juniper woodland, either on relatively flat mesa tops or moderate to steep canyon slopes. Approximately 3,000 acres of the pinyon juniper woodlands were chained and seeded with crested wheatgrass in the late 1960s. The chaining treatment occurred primarily on the deeper soils of the mesa tops in the 'loamy foothills' ecological site. The purpose was to remove pinyon and juniper trees and enhance production of grasses for livestock forage. The bottoms of the canyons are typically terraces covered with big sagebrush or greasewood and dissected by deeply incised channels. The channels themselves typically support tamarisk, coyote willow and occasional old cottonwood trees.

The Cross Canyon allotment is composed of fifteen ecological sites. Ecological sites are areas with uniform soils and topography that produce a distinct natural plant community. The ecological sites for the Cross Canyon Allotment and their potential vegetation (vegetation occurring under the best potential condition) are listed in Table 3. Ecological sites for the Utah portion of the allotment were not determined, but are similar in proportion to the rest of the Allotment.

Table 3. Ecological sites in the Colorado portion of the Allotment

Ecological Site	Potential Vegetation	Acres	Proportion of Allotment
Pinyon Juniper	Canopy of pinyon and juniper with understory of cool and warm season bunchgrasses and shrubs; dominant shrub is big sagebrush	9,498	31%
Pinyon Juniper (steep canyonside)	Mature pinyon and juniper with understory of cool and warm season bunchgrasses and shrubs	8,645	28%
Loamy Foothill	Continuum from cool and warm season grassland to shrubland to pinyon juniper woodland, depending on the fire history of the site	4,248	14%
Loamy Foothill (chained)	Canopy of young pinyon and juniper with understory of cool and warm season bunchgrasses and a minor shrub component	2,986	10%
Salt-desert Breaks	Grasses mixed with salt-desert shrubs; galleta is generally the dominant grass and shadscale the dominant shrub	2,677	9%
Loamy Bottom	Mixed grass-shrub community dominated by basin big sagebrush and great basin wild rye	813	3%
Pinyon Juniper (burned)	Canopy of pinyon and juniper are largely removed resulting in a mix of grasses, forbs and shrubs. Cool-season bunchgrasses are dominant grasses.	408	1%
Semidesert Loam	Dominated by mixed cool and warm season grasses with an sub-dominant shrub community; Wyoming big sagebrush is the most dominant shrub; minor forb component	358	1%
Alkali Bottom	Dominated by alkali sacaton, with western wheat, sandburg bluegrass, inland saltgrass and great basin wildrye; sub-dominant shrub component of greasewood, saltbushes, spiny hopsage, and big sagebrush; minor forb component	278	1%
River Bottom (Riparian)	Cottonwood-willow with variable grass, forb, and shrub components	337	1%
Agriculture, Upland Loam, Industrial, Loamy Foothil (burned), Rock	-----	290	1%

In general, the ecological sites utilized most frequently by cattle in the allotment are: Loamy Bottom and Alkali Bottom in the canyon bottoms, Saltdesert Breaks in McLean Basin, and Loamy Foothill on some of the mesa tops. Cattle use is highly dependent on available water, and water availability can change from year to year. Therefore, some areas that may have available forage are not utilized due to lack of water.

## METHODOLOGY AND RESULTS

Several types of upland vegetation data were collected to assist in making decisions regarding the Cross Canyon Allotment. They include: a Rangeland Health Assessment, vegetation cover and production, ground cover, and long term range trend studies. The first four types of data were collected during 2001. The trend studies were established in 1988 and were read at approximately five-year intervals. The most recent trend study readings were performed in 2008. Descriptions of the methods and their results follow.

### Rangeland Health Assessment

A Rangeland Health Assessment was completed to evaluate ecological sites on the allotment comparing existing site conditions to those expected for the site at potential condition. Eighteen site indicators were evaluated with a qualitative, descriptive rating system, following BLM Technical Reference 1734-6, 2000, Interpreting Indicators of Rangeland Health. The indicators were used to evaluate three rangeland health attributes, *Soil and Site Stability*, *Hydrologic Function* and *Biotic Integrity*. Descriptions of the three attributes follow.

*Soil and Site Stability* refers to the capacity of an area to limit soil erosion by wind and water. *Hydrologic Function* refers to the capacity of an area to capture, store and release water, to continue to function when normal amounts of water are lacking and recover when water is restored. *Biotic Integrity* refers to the capacity of the biotic community (plants, animals and microorganisms) to support ecological processes (such as water infiltration, nutrient cycling, and plant production) under the normal range of conditions, to continue to function when conditions are harsh and recover when conditions improve. These attributes are used, in part, to help make a determination as to whether the allotment is meeting the Rangeland Health Standards for public land health (H-4180-1 Rangeland Health Standards, 1/19/01). Table 4 shows a breakdown of the ratings for the Allotment.

Table 4. Rangeland Health Analysis Ratings for the Allotment.

Percent of acres in each rating	Degree of Departure from Reference Site Condition				
Attribute	Extreme	Mod to Extreme	Moderate	Slight to Moderate	None to Slight
Soil and Site Stability	0%	6%	53%	36%	6%
Hydrologic Function	1%	11%	47%	42%	0%
Biotic Integrity	0%	23%	53%	18%	6%

Since the majority of acres, including a significant proportion of all ecological site types are in a moderate (at risk) category, the allotment was determined not to be meeting the rangeland health guidelines for upland soils or healthy and productive plant and animal communities. At risk rangelands have a reversible loss in productive capability and increased vulnerability to irreversible degradation based upon an evaluation of current conditions of the soils and ecological processes (NRC, 1994). Current livestock grazing was determined to be a contributing factor to existing conditions. Tables 5 A, B, and C show the ratings by ecological site type.

Table 5A. Soil and Site Stability Ratings by Ecological Site for the Allotment.

Percent of acres in each rating	Degree of Departure from Potential Site Condition				
Ecological Site	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Alkali Bottom		58%	42%		
Loamy Bottom		3%	27%	70%	
Loamy Foothill			60%	40%	
Loamy Foothill (chained)			73%	27%	
Loamy Foothill (burned)			52%	48%	
Pinyon Juniper		11%	38%	38%	13%
Pinyon Juniper (burned)			100%		
Salt-desert Breaks			67%	33%	
Semidesert Loam			100%		
Upland Loam				100%	

Table 5B. Hydrologic Function Ratings by Ecological Site for the Allotment.

Percent of acres in each rating	Degree of Departure from Potential Site Condition				
Ecological Site	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Alkali Bottom		100%			
Loamy Bottom		3%	27%	70%	
Loamy Foothill			75%	25%	
Loamy Foothill (chained)		32%	41%	27%	
Loamy Foothill (burned)			52%	48%	
Pinyon Juniper	2%	11%	29%	58%	
Pinyon Juniper (burned)			100%		
Salt-desert Breaks			67%	33%	
Semidesert Loam			100%		
Upland Loam				100%	

Table 5C. Biotic Integrity Ratings by Ecological Site for the Allotment.

Percent of acres in each rating	Degree of Departure from Potential Site Condition				
Ecological Site	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Alkali Bottom		100%			
Loamy Bottom		39%	45%	16%	
Loamy Foothill			80%	20%	
Loamy Foothill (chained)		38%	62%		
Loamy Foothill (burned)			52%	48%	
Pinyon Juniper		11%	57%	19%	13%
Pinyon Juniper (burned)		95%	5%		
Salt-desert Breaks		60%	7%	33%	
Semidesert Loam		66%	34%		
Upland Loam		100%			

### Vegetation Condition

Vegetation cover, ground cover and production were measured on all of the ecological sites in the Cross Canyon Allotment. Using this data, the vegetative condition for each sample point was rated based on the existing species composition as compared to a desired condition. The desired condition was determined from the appropriate ecological site description, reference sites within the Monument if available, and a consideration of the general conditions on the Monument for each ecological site. Table 6 shows the vegetative condition ratings by acres. Table 7 shows a breakdown of vegetative condition by ecological site type.

Table 6. Vegetation Condition Ratings

Condition rating	Percent of desired plant community	Acres	Proportion of allotment
Excellent	76 – 100%	7,779	36%
Good	51 – 75%	3,639	17%
Fair	26 – 50%	8,009	37%
Poor	0 – 25%	1,989	9%

Table 7. Vegetation Condition Ratings by Ecological Type

Percent of acres in each rating	Percent of Desired Plant Community			
Ecological Site	0-25% Poor	26-50% Fair	51-75% Good	75-100% Excellent
Alkali Bottom		100%		
Loamy Bottom		57%	43%	
Loamy Foothill		37%	13%	50%
Loamy Foothill (chained)		67%	33%	
Loamy Foothill (burned)		52%	48%	
Pinyon Juniper	21%	17%	4%	58%
Pinyon Juniper (burned)		95%		5%
Salt-desert Breaks		57%	43%	
Semidesert Loam			66%	34%
Upland Loam		100%		



### **Site Productivity**

Site productivity for 35% of the acres on the Cross Canyon Allotment was below site potential, even considering “unfavorable year” production as described by the NRCS in the ecological site descriptions.

### **Trend Studies**

A total of five long-term trend studies were measured on both allotments. Three of the studies in the Cross Canyon Allotment (those in Lower Cross, McLean, and Cahone Canyon pastures) showed an upward trend since the previous reading in 2004. Drought recovery was evident in these trend studies. Two trend studies showed a downward trend. In the Squaw Point pasture (Cross Canyon Allotment), factors indicating a downward trend were: loss of bunchgrasses over time and an increase in broom snakeweed. In the Squaw Canyon Pasture (Cross Canyon-Utah Allotment), factors indicating a downward trend were: a decrease in sand dropseed (a desirable warm season grass) and establishment of cheatgrass in substantial amounts.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A – Proposed Action**

#### ***Direct and Indirect Impacts***

Implementing a rotational grazing system that allows for regular rest every other year in most pastures during the critical spring growing period and limiting the maximum number of days in each pasture will allow for improvement in vegetation condition. A perennial plant’s carbohydrate reserve storage is typically lowest during the initial growth period through the flowering period. Cool season grass species initiate growth early in the spring (April, May). Grazing during this period adds to the depletion of the reserve (Holechek et al. 1998, pgs 115 - 118). By deferring use during this critical period, plants should respond positively. The shorter grazing periods and regular rest during the critical period will allow for re-growth and inputs to carbohydrate reserves. Lighter utilization levels on palatable species will reduce carbohydrate expenditures. Seedlings will have a longer period to become established before the next grazing period when trampling will have an effect.

Litter cover and biological crust cover should increase due to the lighter stocking levels. There will be more vegetative material remaining under lighter utilization levels to provide litter. Biological crust cover should improve slightly due to reduced impacts and longer periods of recovery. Higher litter cover and the possibility of increased development of biological crusts will provide greater ground cover. Wind and water erosion will be reduced as a result of the ground cover and increased infiltration rates.

Improvements in plant composition and health and increased ground cover and infiltration will improve site productivity. Increased forage production should increase to numbers closer to the potential for the ecological sites.

This alternative will make progress in moving the allotment toward meeting the Rangeland Health Standards for healthy and productive plant and animal communities, upland soils and riparian systems.

## **Alternative B – No grazing**

### ***Direct and Indirect Impacts***

This alternative has the highest potential for improvement in the plant community. Plants will be able to complete their entire growing cycle each year allowing for balanced carbohydrate reserves and regular production of seeds for reproduction. Seedlings will be able to establish without damage from trampling. The recovery response may be negligible in certain situations where there is a very limited seed source for native perennial species or where there is dominance of big sagebrush, tamarisk, cheatgrass or pinyon-juniper. An input of energy in the form of herbicides, seeding, fire or mechanical treatment may be necessary to see improvement in these areas within a reasonable timeframe.

Ground cover in the form of vegetative litter will increase since plants will only be utilized by wildlife. Due to reduced disturbance from hoof impacts, biological crust cover will increase and over time will develop characteristics of older crusts such as increased depth, and life form and species complexity. These two factors combined will reduce erosion, increase infiltration and site productivity and promote seedling establishment (Belnap et al. 2001).

This alternative has the highest potential for recovery of the plant community and development of ground cover in the shortest amount of time. This alternative will allow the allotment to meet the Rangeland Health Standards for healthy and productive plant and animal communities, healthy riparian areas and upland soils.

## **THREATENED, ENDANGERED AND SENSITIVE PLANT SPECIES**

### **AFFECTED ENVIRONMENT**

Two Endangered, one Threatened and two Candidate species have potential to occur on lands administered by the San Juan Field Office, Colorado. Endangered species are *Astragalus humillimus* (Mancos milk vetch), and *Pediocactus knowltonii* (Knowlton's cactus). The Threatened species is *Sclerocactus mesa-verdae* (Mesa Verde cactus), and the two Candidate species are *Astragalus tortipes* (Sleeping Ute milkvetch) and *Ipomopsis polyantha* (Pagosa skyrocket) (USFWS letter February 2008).

None of the Threatened, Endangered or Candidate species with potential to occur on lands administered by the San Juan Field Office, Colorado have potential within the analysis area.

*Astragalus humillimus* has only been found on exfoliating Point Lookout sandstone formation of the Mesa Verde group (Spackman et al. 1997). *Pediocactus knowltonii* is known only from a very restricted area south and east of Bayfield, CO on cobbly riverine alluvium (Spackman et al. 1997). *Sclerocactus mesa-verdae* is only known from clay hills underlain by the Mancos shale of the Fruitland formation east of Sleeping Ute Mountain. *Astragalus tortipes* occurs on the southern flank of the Sleeping Ute Mountain on Mancos shale badlands overlain by pediment gravel (Anderson and Porter 1994). *Ipomopsis polyantha* occurs on shale barrens only in the Pagosa Springs area. These habitats do not occur within either of these allotments.

Twelve Sensitive plant species are known or likely to occur on lands administered by the San Juan Field Office (BLM Colorado State Office Information Bulletin No. CO-2000-014). Within the analysis area for this environmental assessment, no species are known to occur and five species have potential habitat. A list of these species, the habitats they are known to occupy and their potential to occur in the analysis area are summarized in the table below.

Table 8. Sensitive plant species known or likely to occur on lands administered by the San Juan Field Office.

Scientific Name Common Name	Federal Status	Habitat	Potential to occur in analysis area
<i>Amsonia jonesii</i> , Jones' blue star	Sensitive	Run-off fed draws on sandstone in pinyon-juniper and desert shrub communities, 3,900 to 7,000 feet.	Yes, habitat within the analysis area.
<i>Astragalus cronquistii</i> , Cronquist milkvetch	Sensitive	Mancos shale and on substrates derived from the Morrison Formation, 4,800 to 5,800 feet.	No, habitat not present.
<i>Astragalus naturitensis</i> , Naturita milkvetch	Sensitive	Sandstone mesas, ledges, crevices and slopes, 5,000 to 7,000 feet.	Yes, habitat within the analysis area.
<i>Astragalus sequiflorus</i> , Sandstone milkvetch	Sensitive	Sandstone rock ledges, fissures of slickrock, talus under cliffs, and sometimes in sandy washes, 5,000 to 5,500 feet.	Yes, habitat within the analysis area.
<i>Carex viridula</i> , Little green sedge	Sensitive	Calcareous fens 8,700' – 9,200'.	No, habitat not present.
<i>Epipactis gigantea</i> , Giant helleborine	Sensitive	Decomposed sandstone; sandstone seeps; <8,000 feet	Yes, habitat within analysis area.
<i>Erigeron kachinensis</i> , Kachina daisy	Sensitive	Saline soils in alcoves and seeps in canyon walls, 4,800 to 5,600 feet	Yes, habitat within analysis area.
<i>Erigonum clavellatum</i> , Comb Wash buckwheat	Sensitive	Shale soils in shadscale communities, 4,300' -to 5,500'. (known in 4 corners area and adjacent Utah)	No, habitat not present.
<i>Lesquerella pruinosa</i> , Frosty bladderpod	Sensitive	Mancos shale; ponderosa pine; Gambel oak; around 7,000 feet	No potential habitat; Pagosa area only
<i>Lygodesmia doloresensis</i> , Dolores skeleton plant	Sensitive	Juniper and sagebrush communities, 4,600 to 5,700 feet	No potential habitat; San Miguel County only
<i>Mimulus eastwoodiae</i> , Eastwood monkey-flower	Sensitive	Shallow caves and seeps on canyon walls, 4,700 to 5,800 feet	Yes, habitat within analysis area
<i>Pediomelum aromaticum</i> , Aromatic Indian breadroot	Sensitive	Open pinyon-juniper woodlands, in sandy soils or adobe hills, 4,800' - 5,700'.	No potential habitat; San Miguel County only

## FLOODPLAINS, WETLANDS AND RIPARIAN ZONES

### AFFECTED ENVIRONMENT

Major drainages within the analysis area include Cross Canyon and Squaw Canyon. Minor drainages in the analysis area include Ruin, Cahone, Cow and Papoose Canyons. Both major and minor drainages can have reaches that are ephemeral, intermittent and perennial. Ephemeral and intermittent reaches flow in response to runoff events and may or may not support discontinuous patches of riparian vegetation. The riparian vegetation for these systems generally consists of cottonwoods, willow, tamarisk and little to no herbaceous riparian species. Some ephemeral drainages are dominated by sagebrush, greasewood and rabbitbrush due to limited

amounts of available water in the system. Riparian vegetation for the perennial reaches is similar to the ephemeral and intermittent systems (e.g., cottonwoods, willow, and tamarisk) although present in more abundance with an herbaceous riparian vegetation component.

The streams within the Cross Canyon Allotment are augmented by irrigation return flows diverted from the Dolores River basin. Additional water in these systems has caused changes in channel and floodplain morphology and created perennial and intermittent reaches where none existed prior. Because of irrigation return flows, Cross Canyon has more numerous perennial reaches with longer extents in years of average or above average precipitation, and certain reaches of the stream are perennial in drought years. In general, flow in these streams gradually increases from April through September, as local aquifers are recharged with irrigation return flows.

A few seeps and springs are scattered throughout both allotments. Most seeps and springs have tamarisk at their source with small amounts of willow and an herbaceous riparian vegetation component. Springs that are located in the headwaters of Cross Canyon are affected by irrigation return flows. At these springs riparian area extents are larger than expected due to increased flow rates at the source.

### **BLM Standards for Public Land Health in Colorado**

Of the five standards evaluated for public land health, riparian systems is discussed under this section. This standard is not achieved for the allotment on either the Colorado or Utah side. Proper functioning condition assessments for lotic (flowing water) and lentic (standing water) riparian areas were used by the BLM interdisciplinary team to come to this determination.

### **Proper Functioning Condition Assessments**

Lotic and lentic systems were assessed using Proper Functioning Condition protocol. The most recent ratings are reflected in Table 9. This is a qualitative survey used to assess stream hydrology, vegetation and erosional/depositional processes. Streams are rated Proper Functioning Condition (PFC), Functional-At Risk (FAR) or Nonfunctional (NF). Functional-At Risk ratings include an assessment of trend (BLM TR 1737-9 1993). Definitions for these ratings are provided in Appendix C.

Table 9. Proper Functioning Condition ratings.

Allotment	Pasture	Riparian Area	Rating	Trend	Causal Factors
	Lower Cross		FAR	Downward	Tamarisk invasion, historic and past livestock grazing
			PFC	NA	NA
	Middle Cross		PFC	NA	NA
			FAR	NA	Tamarisk invasion, historic and past livestock grazing, current livestock grazing/trailing, wildlife use
			PFC	NA	NA
		Cow Canyon	FAR	Downward	Irrigation return flows, wildlife use (elk), possible trespass livestock use
		Little Cow Canyon	FAR	Downward	Irrigation return flows, historic and past livestock grazing, wildlife use, possible trespass livestock use
		Frothy Spring	FAR	Not apparent	Irrigation return flows caused a landslide that inundated source with sediment
	Upper Cross		PFC	NA	NA
			FAR	Not apparent	Irrigation return flows, historic and past livestock grazing
		Braven Spring	NF	NA	Pollution from private lands upstream
	Cahone Canyon	Cahone Canyon-lower reach	FAR	Not apparent	Irrigation return flows, historic and past livestock grazing, current livestock grazing, wildlife use
		Cahone Canyon-upper reach	FAR	Not apparent	Irrigation return flows, historic livestock grazing
	Squaw Canyon/Squaw Point	Papoose Canyon	FAR	Downward	Irrigation return flows
		Squaw Canyon	FAR	Downward	Irrigation return flows, historic livestock grazing
		Squaw Canyon	PFC	NA	NA
		Quail Spring	FAR	Not apparent	Wildlife use, current livestock grazing
	Squaw Point	Papoose Canyon	FAR	Downward	Irrigation return flows

		H-O Spring	FAR	Downward	Roads, irrigation return flows, current livestock grazing, failure of old dam causing excessive erosion
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Of the riparian areas assessed, only 4 of them are impacted by current livestock grazing. Many of the riparian areas that were impacted by historic and recent past grazing (more than 8 years ago) have greatly improved under the current grazing management. The four areas of concern are 5 miles of Cross Canyon in the Middle Cross pasture that rated FAR with a not apparent trend; 2 miles of lower Cahone Canyon that rated FAR with a not apparent trend; and Quail and H-O springs.

The Middle Cross pasture was originally rated non-functional in 2003. This rating was re-evaluated after discussions with the current interdisciplinary team. Through these discussions it was determined that the potential riparian width was overestimated. The new assessment resulted in an overall rating for the reach of FAR. Trend was not apparent. Hydrology and erosion issues for this reach include lateral erosion and cutting; floodplain and channel characteristics are not adequate to dissipate energy; and the stream is not in balance with the water and sediment being supplied by the watershed. Vegetation issues are lack of adequate cover to protect banks and dissipate energy, limited age-classes of willow, and minimal species diversity. Current livestock use amounts to little more than trailing through this reach but, due to the limited area available for grazing/trailing, impacts to valley bottom vegetation and soils and to the stream bank vegetation remain significant.

The lower reach of Cahone Canyon rated FAR with trend not apparent. Photo points were established in 2003 and retaken in 2008. The riparian area showed very little change during this time. Livestock impacts were apparent on the upland terraces as well as the riparian area in 2008. Major issues with this reach of Cahone Creek include sinuosity, width/depth ratio and gradient are not in balance with the landscape setting; riparian area is not at potential extent; orchard grass is the dominant riparian vegetation; the stream is cutting laterally; and the upland watershed is contributing to excessive erosion within the stream channel.

Quail Spring rated FAR with a not apparent trend. Quail Spring is located in a very dry reach of Squaw Canyon. Squaw Canyon is ephemeral for several miles along this reach and Quail Spring is one of the few water sources in the area. Wildlife and livestock use (predominantly wildlife as determined by the multiple game trails leading to the spring) are altering surface water flow patterns resulting channelization of the spring and reducing the amount of riparian vegetation at the source. H-O Spring rated FAR with a downward trend. Flows at H-O Spring are augmented by irrigation and by road drainage. The excessive flows are resulting in large headcuts just downstream of the source and additional inputs of sediment. Tamarisk, weedy grasses and thistle are scattered throughout the spring. Livestock impacts are resulting in channelization of surface flows. It is suspected that livestock impacts at this spring are due to trespass by cattle from adjacent private lands.

## **ENVIRONMENTAL CONSEQUENCES**

This discussion is focused on those riparian areas that are affected by current permitted livestock grazing: the Middle Cross pasture, the lower reach of Cahone Canyon, and Quail Spring.

(Conditions at H-O Spring would not change because they are not thought to be affected by permitted livestock.) Under both alternatives, the Cross Canyon Allotment would “not achieve” the standard for riparian systems. The rationale for this conclusion is presented below.

#### Alternative A - Proposed Action

Under this alternative, the lower reach of Cahone Canyon would change from FAR with not apparent trend to FAR with an upward trend. All other ratings would likely remain the same.

With gap fences at Dove Creek Canyon and the upper portion of Cross Canyon, a more intensive grazing system could be implemented which would reduce the amount of time livestock present along the lower reach of Cahone Canyon. Adjacent terraces would improve through increased ground cover and reduced compaction which would reduce the amount of runoff from these areas. Riparian width would be expected to increase as would the amount and vigor of willow. Lateral stream cutting may be reduced but not significantly due to most lateral cutting occurring as a result of augmented stream flows from irrigation. The Middle Cross pasture would see no significant changes.

Quail Spring would have minor changes due to periodic rest from livestock grazing. There would be fewer disturbances to surface water flow patterns from the hoof action of livestock on years of rest and riparian vegetation may have more vigor and abundance.

#### Alternative B - No Grazing

Under this alternative, the lower reach of Cahone Canyon would change from FAR with not apparent trend to FAR with an upward trend. All other ratings would likely remain the same.

With no grazing along the lower reach of Cahone Canyon the affects would be the same as with Alternative A but would occur at a faster rate. Adjacent terraces would improve through increased ground cover and reduced compaction which would reduce the amount of runoff from these areas. Riparian width would be expected to increase as would the amount and vigor of willow. Lateral stream cutting may be reduced but not significantly due to most lateral cutting occurring as a result of augmented stream flows from irrigation.

The Middle Cross pasture would not experience significant changes. Over many decades, if climatic conditions are favorable, there may be more stream bank vegetation and greater species and age-class diversity of willow.

Effects to Quail Spring would be the same as Alternative A but would occur at a faster rate. There would be no disturbance to surface water flow patterns from the hoof action of livestock but wildlife impacts would continue. Riparian vegetation may have more vigor and abundance.

## **WATER QUALITY**

### **AFFECTED ENVIRONMENT**

Major drainages within the analysis area include Cross Canyon and Squaw Canyon. Minor drainages in the analysis area include Ruin, Cahone, Cow and Papoose Canyons. Major and minor drainages have reaches that are ephemeral, intermittent and perennial. They are known to be augmented by irrigation return flows diverted from the Dolores River basin. All drainages are tributary to Montezuma Creek which is tributary to the San Juan River. Portions of both Utah and Colorado lie within the Montezuma Creek watershed and therefore two sets of state regulations will be addressed in this section. There are seeps and springs in the analysis area that are also considered tributary to the San Juan River for purposes of assigning water quality standards. The San Juan River is part of the upper Colorado River Basin.

### **BLM Standards for Public Land Health**

Of the five standards evaluated, water quality is discussed under this section. A definition for this standard is provided in Appendix A for Colorado and Appendix B for Utah. This standard is achieved for the portion of Cross Canyon Allotment in Colorado. This standard is not achieved for the portion of Cross Canyon-Utah Allotment in Utah. Information used by the BLM interdisciplinary team to come to this determination is 303 (d) lists for Utah and Colorado and water quality monitoring data.

### ***Water Quality Standards***

Both Colorado and Utah have established classifications and numeric standards for surface waters in compliance with the Clean Water Act. The classifications identify beneficial uses of the water. In Colorado, the segment descriptions within the Cross Canyon Allotment are defined as all tributaries to the San Juan River in Montezuma and Dolores Counties, including all wetlands, lakes and reservoirs. Beneficial uses for these segments are warm water aquatic life, recreation and agriculture (CDPHE-WQCD, July 2007, Regulation No. 34). In Utah, the segment descriptions are defined as all tributaries to the San Juan River from Lake Powell to the State line. Beneficial uses for these segments are domestic supplies, recreation, warm water aquatic life and agriculture (Rule R317-2. Standards of Quality for Waters of the State).

Numeric and narrative standards exist for surface waters within the Cross Canyon Allotment. Numeric standards include physical, biological, inorganic and metal parameters. The salinity standard applicable to Colorado's surface waters is a unique numeric standard that is defined in the document "Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975" which was most recently updated in 2008. The standard requires that water characteristics in the headwaters of the Colorado River are such that a total dissolved solid (TDS) value of 723 mg/L can be maintained below Hoover Dam. Utah has a specific TDS standard for their surface waters. The temperature standard for the San Juan River basin in Colorado is a narrative standard that states that temperatures must maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes. Again, Utah has specific temperature standards. Additional narrative standards for both Colorado and Utah state that it is unlawful to discharge waste such as sludge, oil, floating debris, etc. or to cause conditions which produce undesirable aquatic life or undesirable human health effects.



The primary parameters that can be affected by livestock management include dissolved oxygen, pH, bacteria, TDS, turbidity, temperature, nitrates, ammonia and phosphorus. In relation to livestock management, dissolved oxygen, pH, TDS, and phosphorus can be influenced by the amount of erosion occurring on the watershed while nitrogen concentrations are influenced more by the amount of runoff. Bacteria and ammonia concentrations are influenced by the presence of livestock in the stream channel or riparian zone and to a much lesser degree their presence and concentration on the uplands. Temperature is influenced by the amount of stream shading and by physical characteristics of the stream, such as width/depth ratio.

Stream segments that are not fully supporting their designated beneficial uses are defined as impaired and placed on a State's 303(d) List. None of the stream segments in both the allotments are listed on either State's current 303(d) list indicating that all water quality standards have been met (CDPHE-WQCD, Status of Water Quality in Colorado – 2006; Utah 2006 Integrated Report Volume I 305 (b) Assessment). However, the Monticello Resource Management Plan for Utah states that based on the Utah Department of Environmental Quality (UDEQ) sampling program the Montezuma Creek watershed is a problem watershed due to excess salinity concentrations in its surface waters. A 2009 UDEQ Acute Water Quality Standards Exceedence Report has total dissolved solids (TDS), a measure of salinity, exceeding the water quality standard 67% of the time which places it in the nonsupport category for the beneficial use of agriculture. Standard 4 of Utah's Standards for Rangeland Health states that BLM will apply and comply with water quality standards established by the State of Utah and specifically mentions total dissolved solids as a water quality parameter to be met. Thus, nonsupport for the beneficial use of agriculture due to exceedence of Utah's TDS standard means that Standard 4 of the Rangeland Health Standards for Utah is not achieved.

Water quality data was collected by the BLM in Colorado in April 2001. Both macroinvertebrate and water chemistry data was collected. Macroinvertebrate data had low taxa richness and abundance and was single taxa dominant all of which indicates poor water quality. Water chemistry data indicated high concentrations of total dissolved solids. Headwater springs sampled in 2001 also had high TDS. As mentioned before Colorado does not have a numeric standard for TDS other than the salinity standard at Hoover Dam; therefore it cannot be ascertained whether or not the TDS concentrations in Cross Canyon are violating the salinity standard that applies to the Cross Canyon Allotment in Colorado. It can be concluded that they are contributing to the nonsupport status in Utah.

Attainment of the TDS/salinity standard for surface waters can be difficult. High salinity in the upper Colorado River Basin is naturally occurring and pervasive. Many of the saline sediments of the watershed were deposited in prehistoric marine environments. Salts contained within the sedimentary rocks are easily eroded, dissolved, and transported into river systems. The USEPA concluded that about half (47 percent) of the salinity concentration measured in water arriving at Hoover Dam is from natural causes, including salt contributions from saline springs, ground water discharge into the river system (excluding irrigation return flows), erosion and dissolution of sediments, and the concentrating effects of evaporation and transpiration (July 2008 Review Water Quality Standards for Salinity Colorado River System Colorado, River Basin Salinity Control Forum). Although background conditions contribute to high TDS/salinity, human activities can influence the rate of natural salt movement from rock formations and soils to the

river system and include livestock grazing, wildlife management, logging, mining, oil exploration, road building, recreation and urbanization.

## **ENVIRONMENTAL CONSEQUENCES**

Under both alternatives, the allotments would “move towards achieving” the standard for riparian systems but may never “achieve” the standard due to upstream irrigation practices. The rationale for this conclusion is presented below.

### **Alternatives A & B**

Both alternatives A and B would increase ground cover and reduce compaction throughout the allotments. (Under Alternative B, changes would happen at a faster rate and may be more profound.) This would positively influence those water quality parameters that are affected by the amount of erosion and runoff occurring on the watershed. Bacteria concentrations would be reduced. Ammonia concentrations may be reduced but because they are more influenced by irrigation return flows containing residual amounts of fertilizer than by livestock grazing, reductions would be minimal. Temperature would be positively affected when it is being influenced by the amount of stream shading but negligibly affected when physical characteristics of the stream such as a high width/depth ratio are the primary drivers of temperature. Macroinvertebrate communities would be positively affected. Water quality at seeps and springs is not expected to change under either alternative.

## **THREATENED, ENDANGERED AND SENSITIVE WILDLIFE SPECIES**

### **AFFECTED ENVIRONMENT**

This allotment falls within the range of several listed threatened or endangered species in Colorado and eastern Utah. The Project Area does not provide suitable habitat for the following listed species: black-footed ferret and Canada lynx. The black-footed ferret’s historic distribution included southwest Colorado but there are no known ferrets currently occupying this area (Fitzgerald et al. 1994). Since they have been extirpated from this area and there are no large prairie dog colonies, they have been removed from the list of threatened and endangered species to be considered for project impacts (San Juan Public Lands Unit Species List, 8 August 2008).

However, There may be suitable habitat for Mexican spotted owls within the canyons of both allotments. Recent survey efforts in Sandstone Canyon (within the Monument) have been unsuccessful. Further work conducted during the Resource Management Plan assessment indicates that the allotments have low quality habitat and are unlikely to support Mexican spotted owls. The Monticello BLM RMP EIS did not identify suitable habitat within the Cross Canyon-Utah Allotment.

Bald eagles are occasionally seen foraging along McElmo Creek during the winter but are not known to nest within the vicinity of the project. They are also likely to forage in Yellow Jacket Canyon where there are perennial water and forage opportunities.

As described in the Southwest Willow Flycatcher Recovery Plan (2002), a portion of the Monument is within the Upper Colorado Recovery Unit. Habitat was assessed in the Monument for the RMP consultation. Potentially suitable habitat has been identified in the upper reaches of Cross Canyon. This habitat has not been field verified. Observations by surveyors since 1997 at other willow patches have noted the impacts of cattle grazing on suitable and potential habitat and have concluded that changes to grazing practices would likely improve that habitat. There is evidence in other portions of the flycatcher's range that indicate tamarisk may provide suitable habitat (T. Ireland pers. comm.). Habitat assessments are conducted on a periodic basis and protocol surveys are conducted when a project may impact habitat. No flycatchers have been located within the Monument to date. Some suitable habitat was identified in the Utah portion of this allotment and flycatchers have been documented migrating in the lower reaches of Cross Canyon. The BLM Monticello Field Office, Utah has recently conducted mist netting studies along Cross Canyon and suspects there may be nesting flycatchers in this lower portion.

Creeks and canyons within these allotments are tributary to the San Juan River. Water depletions are not associated with range management so there would be no effect to listed San Juan River fishes. Range improvement projects, such as the creation of a new reservoir, may result in water depletion. These types of projects are considered under programmatic assessments for depletions in the San Juan River drainage and are handled through a separate consultation with the U.S. Fish and Wildlife Service. Water depletions will not be addressed further in this assessment.

Two candidate species may occur in this area: yellow-billed cuckoo and the boreal toad. The boreal toad is rare and not likely to be found in this ecosystem. Potential suitable habitat for the yellow-billed cuckoo was identified in 2005. Two blocks were identified in Yellow Jacket Canyon and none were identified within Cross Canyon.

Several sensitive species are considered for this analysis including: Gunnison's sage grouse, ferruginous hawk, spotted bat, Allen's big-eared bat, fringed myotis, Yuma myotis, big free-tailed bat, peregrine falcon, bluehead sucker, and flannelmouth sucker. There is a diversity of habitats suitable for these species from steep, rocky canyons to pinyon-juniper woodlands.

The ferruginous hawk is uncommon to fairly common during the winter in southwest Colorado (Andrews and Righter 1992). It may be sighted foraging within these allotment areas. Ferruginous hawks predominantly forage on jackrabbits and cottontails west of the Continental Divide (Preston 1998). In the Monument, black-tailed jackrabbits and both desert and mountain cottontails are likely to be found (Fitzgerald et. al. 1994). Desert cottontails tend to forage largely on forbs and grasses but the jackrabbit and mountain cottontail utilize shrubs such as juniper, sagebrush, greasewood, and rabbitbrush over the course of a year. Past grazing practices, as well as effects from past chaining projects in the pinyon-juniper have likely affected the distribution and abundance of rabbits.

Allen's big-eared bats and fringed myotis roost in mines and caves and are known to forage in pinyon-juniper woodlands. There are few, if any, mine and cave structures such as these within the Monument overall. However, there may be roosts on adjacent lands or on cliffs within the canyon itself. As a result pinyon-juniper woodlands would play an important role.

The big free-tailed and spotted bats are likely to be found within this area. They roost in rocky cliffs with crevices and fissures. These features are typically found throughout Cross Canyon and its tributaries.

The Yuma myotis is found in pinyon-juniper woodlands and semi-desert environments. They are tied to surface water and riparian areas. They are likely to be found in Cross Canyon where there is perennial water.

Peregrine falcons are not known to occur within the Cross Canyon Allotment but have been sighted within the boundaries of Monument. This species is rebounding and was recently delisted from protection under the Endangered Species Act. They are beginning to re-occupy cliff sites that have not been used in decades. New sites are located in southwest Colorado annually.

The project area falls within the historic range of the Gunnison's sage grouse. No grouse are known to occur and no suitable habitat is within the project area. Gunnison sage grouse are located more than 10 miles away on private lands north of the Cross Canyon and Cross Canyon-Utah allotments and near the town of Dove Creek.

The bluehead and flannelmouth suckers have been located in Yellow Jacket Canyon. Other texts also support their location within Montezuma County, specifically McElmo Creek (Woodling 1985). The bluehead is found in headwater streams and large rivers, requiring water of moderate to fast velocity (Woodling 1985). The flannelmouth is found in larger streams and rivers and all habitat types including riffles, runs, eddies, and backwaters (Woodling 1985). Both fish are bottom feeders, eating a variety of invertebrates.

The longnose leopard lizard is on the Colorado State Director's Sensitive Species List and is found within the boundaries of the Monument. It was identified in the monument proclamation. This lizard is known to occur in southwest Colorado and has been observed on Hamilton, Cannonball, and Risley Mesas. Habitat for the leopard lizard is flat or gently sloping shrublands with a large percentage of open ground. Other habitats within Montezuma County include mesa tops above canyons. The longnose leopard lizard has a small home range from 1.6 to 6 acres in size (Hammerson 1999). It is active above ground from May to early August. It has an unwary behavior, making them vulnerable to human exploitation (Hammerson 1999). They are not known to occur within the Cross Canyon Allotment but survey information is incomplete.

The desert spiny lizard is also on the State Director's Sensitive Species List, and is listed in the monument proclamation. New locations were recorded in 2008, expanding the known range for this lizard. It may not occur within the project area as the southwest corner of the Monument appears to be on the extreme edge of their range. The primary period of activity is from May to September with some activity in April and October, during warm weather (Hammerson 1999). Habitat includes shrub-covered dirt banks and sparsely vegetated rocky areas near flowing streams or arroyos (Hammerson 1999).

The Mesa Verde night snake is not on the State Director's Sensitive Species List for Colorado but was recognized in the monument proclamation. It may be found in the project area. This snake inhabits landscapes with rocky slopes and canyons that are generally not suitable for extensive development (Hammerson 1999). Hammerson (1999) stated that the habitat for this snake is largely intact and not threatened, and the distribution of this snake in western Colorado is probably more extensive than is now known.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A - Proposed Action**

Under this alternative there would be improvements in vegetative conditions overall, both in quality and quantity. Riparian areas would improve in all allotments. Southwest willow flycatcher habitat that is currently potential or degraded suitable as a result of past grazing, is likely to improve. There would be more nesting opportunities. A gap fence would be constructed under this alternative, creating two new pastures. This allows flexibility in implementing an intensive grazing system and furthering opportunities to rest pastures during the critical spring growing period.

There would be more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for sensitive species like the ferruginous hawk. Improvements in grazing practices benefit the food chain overall.

Trampling concerns would not change and there may continue to be impacts to lizards and fish.

### **Alternative B - No Grazing**

With no grazing, there should be incremental positive change in the current downward trend of habitats within the allotments. Riparian areas should continue to improve with the removal of cattle. Habitat for the southwest willow flycatcher would likely reach its potential or become suitable habitat. Forage availability for prey species for the ferruginous hawk would improve over time. These rodent and rabbit species would become more likely to withstand the pressures of droughts, such as experienced in 2002.

There would be little impact on bald eagles. They are very mobile and would go where the foraging can be most successful. Bat populations would remain relatively unchanged, more likely to fluctuate with insect populations. This alternative would not affect bat roosting habitats.

Peregrine falcon annual breeding success is strongly tied to prey availability. Potential impacts to peregrines could occur as a result of changes to their prey base but this is difficult to tie back to grazing practices. Peregrines eat a diversity of bird species including neotropical migrants and year-round residents. Several neotropical migrants known to occur in the area are negatively impacted by heavy grazing including the horned lark and green-tailed towhee. Conversely, other birds are positively impacted by heavy grazing such as the mountain bluebird and sage thrasher (Saab et. al. 1995).

The bluehead and flannelmouth sucker may be impacted when cattle drink, as a result of trampling and increased sedimentation at the water's edge. The sensitive lizards and the nightsnake may also be impacted by trampling that may crush burrows. The reduction in trampling and in sedimentation as a result of removing the cows should improve habitats overall.

## **GENERAL WILDLIFE SPECIES**

### **AFFECTED ENVIRONMENT**

Within the project area there were no emphasis areas identified (e.g. critical or severe big game winter ranges). Resident deer can be found within and adjacent to the project area throughout the year. Wintering deer also utilize the area. Deer likely compete with cattle for the limited forage available in these allotments.

Elk may be found in canyons and on mesa-tops within the allotments where pinyon-juniper stands and protected canyons border agricultural fields. Elk are known to forage extensively in these fields, particularly during the winter. Evidence of elk during the late summer and early fall has been noted in areas adjacent to Cross Canyon Allotment.

Several species of reptiles and amphibians are likely to be found within the project area including the bull snake, striped whipsnake, red-spotted toads, and collared lizards. Amphibians are tied to perennial riparian areas in Cross Canyon.

Birds within the project area are typical of those associated with shrubsteppe habitats. According to Brock et al. (1993), the most important shrubsteppe neotropical migrant birds are horned lark, sage thrasher, Brewer's sparrow, vesper sparrow, and western meadowlark, all of which are ground nesting birds. The sage thrasher and Brewer's sparrow are more linked to sagebrush communities and have not been located during casual bird counts (Leslie Stewart and Cliff Stewart pers. comm). Other neotropical birds that have been noted in the vicinity include the uncommon black-throated sparrow, gray flycatcher and gray vireo; and the more common Bewick's wren, black-throated gray warbler, blue bird, Say's phoebe, and ash-throated flycatcher. Birds in this environment are primarily influenced by extreme and irregular fluctuations in precipitation and ecosystem productivity. As a result, they are highly opportunistic and ecologically adaptable (Brock et al. 1993).

Mammals that may be within the project area include: red and gray fox, raccoon, desert shrew, possibly the Merriam's shrew, black-tailed jackrabbit, desert and mountain cottontail, chipmunks, ground squirrels, prairie dogs, woodrats, several species of mice, and the ringtail (Fitzgerald et al. 1994). The condition of the grasses and forbs throughout the project area would affect the rodent, rabbit, and prairie dog populations, since these vegetation types are the forage base for these animals. Available forage is limited and in poor condition as evidenced by the results of the Land Health Assessment. Animals that utilize these vegetation types can illustrate extremes in numbers, fluctuating with available food resources and weather conditions. Rodents and rabbits, in turn, are prey for the carnivores likely to be found within these allotments. Numerous studies have illustrated the cause and effect relationship between healthy carnivore populations and availability of prey.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A - Proposed Action**

Under this alternative there would be improvements in vegetative conditions overall, both in quality and quantity. Riparian areas would improve in all areas.

There would be more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within these allotments. Improvements in grazing practices benefit the food chain overall.

### **Alternative B - No Grazing**

This alternative promotes the most positive response for wildlife. There would be no trampling by livestock. Grasses and forbs would provide the maximum nutritional value as forage for a variety of species. Riparian vegetation would recover in all areas. There would be no competition for resources between livestock and big game. Deer populations would be healthier with improvements in forage availability and less susceptible to disease.

As described in the vegetation section, other land management practices would likely have to be implemented to manage the invasive plant problem (cheatgrass and tamarisk) and the areas where degradation is beyond natural recovery. No grazing in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

## **INVASIVE, NON-NATIVE SPECIES**

### **AFFECTED ENVIRONMENT**

Both Russian knapweed and musk thistle are included on the Colorado's and Utah's State Noxious Weed List and have been documented within the project area on both allotments. These species generally occur in disturbed areas and low lying areas that receive additional moisture in the form of surface runoff. Most of the inventoried Russian knapweed within the Cross Canyon Allotment and the Cross Canyon-Utah Allotment occurs adjacent to the Cross Canyon Drainage. Musk thistle occurs in disturbed sites throughout both allotments.

Tamarisk is also common in all major drainages and around existing livestock reservoirs throughout both allotments.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A - Proposed Action**

Under this alternative grazing management would increase the amount of rest and deferment within both allotments. As a result range conditions should improve allowing for native plant

communities to increase in vigor and should be better able to compete with noxious weeds and other invasive species. Therefore, improvements in range conditions should result in a decrease in the rate of spread of invasive species and noxious weeds.

#### **Alternative B - No Grazing**

The impacts to noxious weeds and other invasive species would be similar to those from the proposed action.

### **CULTURAL RESOURCES**

#### **AFFECTED ENVIRONMENT**

Since Cross Canyon is located in both Utah and Colorado, each of the BLM field offices conduct Section 106 compliance pursuant to the “BLM National Programmatic Agreement Regarding the Manner in Which BLM Will Meet its Responsibilities Under The National Historic Preservation Act,” as well as the “State Protocol Agreement,” between each BLM State Director and State Historic Preservation Officer. Cultural resources assessments were completed for the portions of allotment in each state, based upon existing archaeological information pursuant to the Instruction Memorandum No. CO-2002-029 for the Colorado portion and to the “Monticello Field Office Procedures for Section 106 for Grazing Permit Renewals” for the Utah portion of the allotment. In addition, field site monitoring, inventory and Section 106 compliance with the National Historic Preservation Act was completed on the Utah portion of the Cross Canyon Allotment. The Utah State Historic Preservation Officer concurred on August 10, 2009 with a “no adverse effect” determination for renewal of the grazing permit on the Utah portion of the allotment.

The Cross Canyon grazing allotment contains approximately 29,528 acres of public lands administered by the Monument in Colorado and 10,240 acres of public lands in the Monticello Field Office. Cultural resource analysis information is presented by state for each respective portion of the Cross Canyon grazing allotment.

#### **Colorado Portion of the Cross Canyon Grazing Allotment**

A Class I inventory was conducted using the Canyons of the Ancients National Monument cultural resource inventory/site overlays and GIS database; and the COMPASS site database maintained by the Colorado State Historic Preservation Office (SHPO). National Register eligibility was derived from the COMPASS database.

A total of 12 livestock concentration areas (LCAs) were identified and were delineated onto 7.5 minute scale U.S.G.S. topographic quadrangle maps by the Range Specialist. The LCAs consist of water sources such as springs and reservoirs (7); and portions of canyon bottoms (5), in McLean Basin, Spook Point, and Cross, Cahone, and Cow Canyons. Areas in which livestock are known or are expected to concentrate are those areas where the potential impact to cultural resources is expected to be greatest. The LCAs identified within the Colorado portion of the



allotment total approximately 2,990 acres; this represents approximately 10 percent of the entire allotment.

Fifty Class III cultural resource inventories have been previously conducted within the Cross Canyon grazing allotment. A total of 2,991 acres or 11 percent of the 29,528 acre grazing allotment has been intensively examined for cultural resources. These figures do not include a Class III inventory currently underway that examined 3,150 acres within the McLean Basin area of the allotment (the entire LCA), and located 273 sites. The contract required a detailed condition assessment at each site. However, the report and site documentation are still in preparation, and the information is not available for this analysis.

Approximately 547 archaeological sites have been previously documented within the boundaries of the Cross Canyon grazing allotment. National Register eligibility is as follows: 135 sites have been determined eligible; 54 sites determined not eligible; and 358 sites are unevaluated for NRHP significance (78 determined “Need data” in order to evaluate).

Eighteen sites are located within LCAs, and the remaining 529 are located outside of the LCAs. The sites represent upland resource procurement and processing from the Archaic, Ancestral Puebloan, and Ute, Navajo, and Euro-American historic occupations of the area. Both open and sheltered sites are represented within this allotment, and include a wide variety of types, such as small seasonal habitations and lithic quarries, etc., to prehistoric community centers comprised of complex, large habitation sites having numerous architectural and non-architectural features, oftentimes exhibiting multiple occupations. Historic structures and paleontological resources have also been identified in this area.

Based upon the results of previous inventories conducted within and in the general vicinity of the allotment, it is expected that an extremely high potential for site occurrence exists in the remaining un-inventoried portion of the allotment.

Quantification of livestock impacts to cultural resources utilizing existing site documentation is difficult due to data limitations. These limitations include the fact that long periods of time have elapsed since site documentation occurred, so condition data is not current. For example many of the sites were recorded during a large inventory project conducted in the late 1960s. A consistent methodology for recording and quantifying site condition information has not been used by archaeologists who have documented sites through time; therefore a great deal of variability exists regarding site condition information contained in site documentation.

All site forms for the sites recorded within the Cross Canyon Allotment were reviewed in order to note impacts attributed to livestock grazing and/or erosion. This compilation noted:

- The presence or absence of livestock impacts, erosion, or constructed range improvements within the site.
- The location of the site within or outside of identified LCAs.

The review of the existing site condition information found that grazing was noted as a disturbance factor or threat at 10 known sites in the allotment, all located outside of LCAs. No further description or characterization was provided about the degree or magnitude of impacts. Erosion was noted as a disturbance factor or threat at 274 known sites in the allotment and 13 of these sites were located within LCAs. Of the 284 sites, 52 were noted to have impacts resulting from erosion ranked at moderate or higher. No sites had constructed range improvements noted on them. No sites were noted with direct physical impacts attributed to livestock grazing.

Nineteen sites have been selected as monitoring candidates based on impacts noted; sensitive site types, and/or location within LCAs. Monitoring is recommended at least twice during the term of the permit in order to collect data to provide information for an assessment of grazing impacts to cultural resources in order to complete Section 106 compliance during the term of the permit. The following stipulations are to be included in the grazing permit and Decision Notice:

**Cultural Resources Protection Stipulations to be Included in the Grazing Permit/NEPA Decision**

1. Cultural fieldwork, Section 106 compliance and identified mitigation are to be completed during the ten-year term of the grazing permit.
2. It is the responsibility of the permittee to inform all employees, contractors, and/or subcontractors working on behalf of the permittee of laws relating to the protection of cultural resources; and to notify them that disturbance to, defacement of, or collection or removal of archaeological, historic, or sacred material is prohibited by law on Federal land. Violations of the laws that protect these resources will be treated as criminal or civil violations by the BLM.
3. Disclosure or release of information regarding the nature and location of archaeological, historic, or sacred sites, without written approval by the Bureau of Land Management, is prohibited under provisions of the Archaeological Resources Protection Act. Permittees may be allowed to use this information during the course of operations for site protection purposes only. Unauthorized use or distribution of this information is considered a violation of Federal statute.
4. Pursuant to 43 CFR 10.4 the holder of this permit must notify the Canyons of the Ancients National Monument Archaeologist at 970-882-5614, by telephone, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony, or exposure of subsurface remains from either natural processes such as erosion, or vandalism.
5. Any new range improvements, or repair or maintenance of existing range improvements that involve new ground disturbance will require compliance with Section 106 of the National Historic Preservation Act, and would undergo standard identification and evaluation procedures, documentation, and consultation with the Colorado State Historic Preservation Officer, prior to authorization by the BLM of any work.

## Utah Portion of the Cross Canyon Grazing Allotment

A Class I inventory was conducted using the Monticello Field Office and Edge of the Cedars State Park Museum cultural resource inventory/site overlays, historic field maps, reports, and the Utah database. National Register eligibility was derived from the available site forms.

Two LCAs were identified and were delineated onto 7.5 minute scale U.S.G.S. topographic quadrangle maps by the Range Specialist. The LCAs consist of a portion of the canyon bottom in Squaw Canyon, and a spring. Areas in which livestock are known or are expected to concentrate are those areas where the potential impact to cultural resources is expected to be greatest. The LCAs identified within the Utah portion of the allotment include approximately 1,010 acres, this represents approximately 13 percent of the entire allotment.

Sixteen Class III cultural resource inventories have been previously conducted within the Cross Canyon Utah grazing allotment. A total of 286 acres, or three percent of the 10,240 acre grazing allotment has been intensively examined for cultural resources.

Approximately 40 archaeological sites have been previously documented within the boundaries of this portion of the Cross Canyon grazing allotment. National Register of Historic Places (NRHP) eligibility determinations are as follows: 18 sites have been determined eligible; 5 sites determined not eligible; and 13 sites are unevaluated for NRHP significance. Information for four sites is unavailable due to incomplete records.

Seventeen sites are located within LCAs, and the remaining 23 are located outside of the LCAs. The sites represent upland resource procurement and processing from the Ancestral Puebloan and historic occupations of the area. Open architecture and rock-shelter or alcove habitations are the most commonly recorded prehistoric site type. Other prehistoric site types include short-term/ seasonal camps or field houses, granaries, rock art, kilns, ceramic and lithic scatters, and isolated finds. Historic sites located in Cross Canyon-Utah Allotment represent Navajo religious/ ceremonial use, habitation, and herding. The religious/ ceremonial sites are interpreted as sweat lodges. Additionally, one hogan and corral suggest domestic and livestock activity.

Information obtained during the Class I inventory was used to formulate the inventory and determine sites to be monitored. Section 106 compliance and fieldwork for the project was conducted by JoAnne Young and Natalie Fast, Archeological Technicians for the Canyons of the Ancients National Monument, in July, 2009. Fieldwork included the following activities:

- Re-locating and examining seven previously recorded sites located in a high livestock impact area within the allotment, and assessing the effects of livestock grazing and other rangeland management activities on those sites;
- Re-locating and examining one site outside the high livestock impact area to assess impacts;
- Conducting a 20-acre Class III (intensive) block inventory in the LCA located in the bottom of Squaw Canyon in order to identify additional sites and augment existing information about the types of sites and impacts occurring in the allotment;
- Recording new sites found during the Class III inventories and assessing the effects of livestock grazing and other rangeland management activities on those sites.

One new historic site was located and documented; and seven previously recorded sites were re-documented on Intermountain Antiquities Computer System (IMACS) forms and were evaluated for eligibility according to the National Register criteria (36 CFR 60.4). This brings the total number of known sites on the allotment to 41, with a total number of 19 sites that are eligible for the NRHP.

Livestock impacts were noted as more frequent in the open sites in the Cross Canyon-Utah Allotment. It is possible that the steep topography and shallow, low alcoves of Squaw Canyon deter cattle from entering most of the alcove sites. Though the presence of cattle was noted in some of the alcoves, impacts to standing architecture and cultural fill are minimal. Human activity was noted in alcove sites as creating considerably more damage in the form of surface collection and illegal digging.

Impacts were noted at three open sites without standing architecture. Impacts included trailing and congregating, and were noted as low/moderate and are contributing to existing erosion channels in the sites. Recommended mitigation includes continued monitoring, and diverting cattle use out of the channels by laying dead brush in areas of trailing and concentration.

A determination of “no adverse effect” for the re-issuance of the term grazing permit for the Cross Canyon-Utah Allotment was made with concurrence by the Utah State Historic Preservation Officer on August 10, 2009.

## **ENVIRONMENTAL CONSEQUENCES**

Impacts to cultural resources resulting from livestock grazing can range from direct physical damage to indirect impacts such as erosion. Physical impacts include livestock rubbing against standing walls or other architecture, rock art images; trampling, urinating and defecating in archaeological deposits.

Certain site types are considered more sensitive and vulnerable to impacts from livestock such as sites with standing architecture (prehistoric and historic), rock art, and rock shelters.

- Damage to architecture such as standing walls includes collapse or dislodging rubble leading to accelerated collapse, and/or erosion.
- Natural rock shelters can be attractive places for animals seeking shelter from sun or weather. In addition to increased erosion from trailing up slopes to reach rock shelters, the fragile site deposits are at risk from trampling, mixing, and chemical alteration/deterioration from concentrations of urine and dung. Preservation of perishable archaeological remains is often exceptional because of dry conditions in natural rock shelters, so this rare class of artifacts is particularly vulnerable to damage or destruction from livestock.
- Rock art images are fragile by nature, as are the rock faces onto which they are applied. Abrasion by animals has a potential to deteriorate or even destroy rock art.
- Areas where livestock concentrate are considered particularly vulnerable to livestock impacts from the effects of concentrations of numbers of animals as well

as repetitive use. Such areas include water sources, shade trees or sheltered locations, around salt/mineral blocks, and along fence-lines. In some cases larger more obvious sites were avoided by chaining activities that were conducted in the past. The trees remaining on such sites often provide the only shade sources, causing cattle to concentrate in these site areas in order to access the shade. Depending upon topography in concentration areas, the rate of erosion can be greatly increased by concentrations of use.

- Construction of range improvements such as tanks, fences, access roads, and spring improvements also have direct effects to cultural resources if built on or near sites. Indirect effects can also occur to sites if construction of nearby range improvements results in changes in use patterns.
- Degraded vegetation conditions such as large expanses of bare soil, decreased ground litter and biological crusts are subject to increased rates of erosion from both wind and water; these conditions can cause accelerated rates of deterioration to cultural resources. A healthy, properly functioning ecosystem condition is considered beneficial in the context of the role in contributing to the long-term physical preservation of cultural resources.

#### Alternative A - Proposed Action

##### Direct and Indirect Impacts

The Rangeland Health Assessment determined that the rangeland health standards for upland soils, healthy and productive plant and animal communities and riparian systems are making significant progress in the Cross Canyon grazing allotment and not being met in the Cross Canyon-Utah Allotment; and that current livestock grazing was determined to be a contributing factor to existing conditions. The amount of bare soil in an area is a direct indication of the susceptibility to accelerated water and wind erosion. Increased rates of erosion also have the potential to degrade the stability of cultural resources.

The proposed action proposes implementation of a rotational grazing system that allows for increased rest in most pastures during the critical growing period in spring and limiting the maximum numbers of days in each pasture will allow for improvement in vegetative condition. Litter cover and biological crust cover should also increase over time due to lighter stocking levels; having the effect of reducing the rates of wind and water erosion. Overall improvement in ecological health is expected to result as improvements in plant composition, health, increased ground cover, and improved infiltration occur in response to the proposed management under Alternative A. Improvement of at least maintenance of site stability and preservation would also be expected to also occur. Direct physical impacts to cultural resources resulting from livestock grazing would still occur under this alternative.

#### Alternative B – No grazing

##### Direct and Indirect Impacts

This alternative has the highest potential for recovery of the plant community and development of ground cover in the shortest amount of time, and consequently has the highest potential for the allotment to meet Rangeland Health Standards for healthy and productive plant and animal

communities, healthy riparian areas, and upland soils. A stable, healthy, functioning ecosystem is also beneficial to the physical stability, and long-term preservation of cultural resources.

### **Cultural Resources Cumulative Impacts**

Monitoring of identified sites and collecting current data for Section 106 compliance and mitigating identified impacts to sites at moderate to high levels should serve to prevent or reduce on-going damage from livestock grazing to cultural resources during the term of this permit. Impacts to archaeological sites resulting from direct and indirect impacts (as discussed in the Environmental Consequences section above) would become cumulative if mitigation measures are not taken to address them.

## **RECREATION / WILDERNESS STUDY AREAS**

### **AFFECTED ENVIRONMENT**

Recreation within the analysis area varies from big game hunting, dispersed camping, and back-country access to three different Wilderness Study Areas (WSAs): Cross Canyon WSA, Cahone Canyon WSA, and Squaw/Papoose Canyon WSA. There is no formal trail system nor any developed recreation sites within the analysis area.

A majority of the day-use access occurs throughout the year for back-country hiking and backpacking, horseback riding, and for big game hunting. Various dispersed campsites are scattered throughout the allotment, with no considerable area of concentration.

### **Wilderness Study Areas**

The Cahone Canyon WSA is situated entirely within the boundaries of the Monument with a total acreage of 9,156 acres. The Cross Canyon and Squaw/Papoose WSAs extend beyond the western boundaries of the Monument into Utah; respective acreages include 12,692 acres and 11,133 acres.

Areas currently managed as WSAs will continue to be managed under the Interim Management Policy for Lands Under Wilderness Review (H-5550-1) until Wilderness legislation is passed or until Congress releases the areas for multiple uses. The 1985 San Juan / San Miquel RMP and subsequent 1990 Wilderness Environmental Impact Statement recommended the three WSAs as non-suitable for wilderness designation due to “manageability problems from oil and gas leases and numerous mining claims.” Additional values such as, “scenery, T&E habitat, and recreation unique enough for wilderness designation,” were also cited as rationale for the non-suitable recommendation (1985 SJ/SM RMP, page 15).

## **ENVIRONMENTAL CONSEQUENCES**

### **Direct and Indirect Impacts**

With the exception to the Proposed Reservoirs #1, #3, and #4, the Proposed Action and Alternative B would have no considerable direct and/or indirect impacts on the recreation

activities that exist throughout the analysis area. Many of the activities, such as access for day-use, hunting, horseback riding, and dispersed camping would still exist regardless of the alternative that is chosen.

Proposed Reservoirs #1, #3, and #4, all fall within an existing WSA. Interim Management Policy allows for new, permanent livestock developments after evaluating resource conditions to determine if the development truly enhances wilderness values. In addition, the developments must be substantially unnoticeable and must not require motorized access if the area were designated as wilderness (H-8550-1; Chapter III, D.2a, 3c, 4d). Direct effects would be experienced on the solitude and 'quiet-use' characteristics generally associated with WSAs due to the use of heavy equipment needed to construct and/or maintain each water development. The sight and sound of heavy equipment and the short term visual condition of each area would also be impacted during construction of each of the three reservoirs.

Management of each WSA has been maintained under current grazing authorizations and no dramatic changes are expected if segments of any WSA are found eligible or suitable for wilderness designation. Under the Proposed Action, portions of the WSA that are currently authorized for grazing would remain available. Standards and guidelines are in place in order to manage for desired conditions (as identified in allotment management plans).

Under Alternative B, the allotment would no longer be available for grazing. Direct effects from this alternative would enhance the character of each WSA by eliminating the need to access and maintain existing infrastructure associated with livestock grazing operations; for example, motorized routes needed to access livestock infrastructure could be permanently closed and rehabilitated to a natural condition.

### **Cumulative Impacts**

The BLM currently manages each WSA within the analysis area in order to protect wilderness values and other recreation values. In the long term, findings of eligibility or suitability in regards to implementing any of the alternatives for this project would not change the current situation; therefore, the alternatives would not add cumulative impacts to the WSA or any of the other recreation activities that occur within the analysis area.

Since the intent of providing additional reservoirs in the WSAs is to distribute livestock evenly and ultimately draw them away from impacting riparian areas, wilderness values would be enhanced in the long term. Continuation of livestock grazing under the Proposed Action would therefore have no impact on the three WSA's eligibility for future wilderness designation

Implementation of Alternative B would also enhance long term wilderness values. Removal of grazing in Cross Canyon and Cross Canyon-Utah Allotment would eliminate the need for motorized routes and/or motorized equipment to access livestock improvements, therefore enhancing wilderness values by returning access routes to a natural state.

## **SOCIOECONOMICS**

### **AFFECTED ENVIRONMENT**

Livestock grazing is recognized as an important aspect of the local custom, culture, and economy in Montezuma County and is supported in their 1997 Comprehensive Land Use Plan. Livestock grazing is also recognized as an appropriate use of public lands in the Presidential Proclamation that established the Monument.

The affected BLM grazing permittee is involved in a cow-calf livestock operation. To be successful the permittee has to have economical sources of feed and water for their livestock 365 days of the year. Having adequate summer pasture is of little value if the operator cannot at a minimum accommodate their production of cows for the balance of the year.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Alternative A - Proposed Action**

The proposed action would have no effect on this element, as the proposed action would continue to authorize grazing in both allotments for the same period of time and at the same grazing levels.

#### **Alternative B - No Grazing**

Implementation of the No Grazing Alternative would involve not re-issuing the term grazing permit. The grazing permittee would have to find alternative private pastures or forage for that period of grazing that would be lost. This potentially would have a negative impact to the permittees livestock operation.

### **RESOURCES NOT PRESENT OR NOT AFFECTED**

BLM resource specialists consider a number of resources when conducting environmental analysis. If a resource is not present or would not be affected, it is not carried forward for analysis. Table 10 below contains resources/concerns that have been considered in this EA but determined to be not present or not affected by the management alternatives.



Table 10. Resources not present or not affected by alternatives.

NP = not present in the area impacted by the alternatives.

NI = present, but not affected to a degree that detailed analysis is required.

<b>Resource</b>	<b>Determination</b>	<b>Rationale for Determination</b>
Air Quality	NI	Neither of the alternatives identified for analysis would measurably impact air quality standards. Moving livestock could produce small amounts of fugitive dust in the short term, but this would cause negligible and localized impacts on air quality.
Areas of Critical Environmental Concern	NI	The ACEC boundary is coincidental to the more recent Monument designation for the allotment. Furthermore, Monument designation provides a higher level of protection to objects of scientific and historic interest (i.e. archaeological, geological, and biological), than compared to the ACEC designation.
Environmental Justice	NI	The proposed action and alternative would have no disproportionately high or adverse human health or other environmental effects on minority or low income segments of the population. Also, continued livestock grazing would have no effect on low income and minority populations.
Farmlands (Prime or Unique)	NP	There are no prime or unique farmlands within the project area. Shallow soils, low permeability, high PH, low organic content, rock, low precipitation, steep slopes and other factors make farming these public lands generally unfeasible.
Native American Religious Concerns	NP	Native Americans are being consulted through a request for comment on this EA. If Native American religious or other concerns are indentified, they will be brought forward for analysis.
Wastes (hazardous or solid)	NP	No hazardous or solid wastes are known to occur in this allotment.
Wild and Scenic Rivers	NP	There are no river segments within the allotments that are designated, eligible, or suitable as wild, scenic, or recreational under the Wild and Scenic Rivers Act.
Wilderness	NP	There is no designated wilderness within the allotments.

#### **IV. CONSULTATION AND COORDINATION**

##### **Persons, Groups and Agencies Consulted**

A copy of the Environmental Assessment will be mailed directly to the following for a 30-day comment period:

Chris Majors  
Dolores Board of County Commissioners  
Montezuma Board of County Commissioners  
Montezuma County Stewardship Committee  
Colorado Division of Wildlife  
U.S. Fish & Wildlife Service

##### **Native American Tribes will be Consulted Through Review of this Environmental Assessment.**

The Northern Ute Tribe  
The Ute Mountain Ute Tribe  
The Southern Ute Tribe  
The Navajo Nation  
The Hopi Tribe  
The Jicarilla Apache Tribe  
The Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, Santa Ana, Santo Domingo, Sandia, San Felipe, San Juan, San Ildefonso, Santa Clara, Tesuque, Taos, Zia, and Zuni.

##### **Public Notification**

Notification of the availability of the EA for a 30-day public comment period will be made through the local media and Monument website.

(<http://www.co.blm.gov/canm/index.html>).

#### **V. LIST OF PREPARES**

LouAnn Jacobson, Monument Manager  
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**STANDARDS FOR PUBLIC LAND HEALTH  
AND  
GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT  
IN COLORADO**  
January 1997

**Standards for Public Land Health**

**STANDARD 1:** *Upland soils* exhibit infiltration and permeability rates that are appropriate to soil, type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for accumulation of soil moisture necessary for optimal growth and vigor, and minimizes surface runoff.

Indicators:

- Expression of rills and soil pedestals is minimal.
- Evidence of actively-eroding gullies (incised channels) is minimal.
- Canopy and ground cover are appropriate.
- There is litter accumulating in place and is not sorted by normal overland water flow.
- There is appropriate organic matter in soil.
- There is a diversity of plant species with a variety of root depths.
- Upland swales have vegetation cover or density greater than that of adjacent uplands.
- There are vigorous, desirable plants.

**STANDARD 2:** *Riparian systems* associated with both running and standing water, function properly and have the ability to recover from major disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and biodiversity. Water quality is improved or maintained. Stable soils store and release water slowly.

Indicators:

- Vegetation is dominated by an appropriate mix of native or desirable introduced species.
- Vigorous, desirable plants are present.
- There is vegetation with diverse age class structure, appropriate vertical structure, and adequate composition, cover, and density.
- Streambank vegetation is present and is comprised of species and communities that have root systems capable of withstanding high streamflow events.
- Plant species present indicate maintenance of riparian moisture characteristics.
- Stream is in balance with the water and sediment being supplied by the watershed (e.g., no headcutting, no excessive erosion or deposition).
- Vegetation and free water indicate high water tables.

- Vegetation colonizes point bars with a range of age classes and successional stages.
- Active floodplain is present.
- Residual floodplain vegetation is available to capture and retain sediment and dissipate flood energies.
- Stream channels have appropriate size and meander patterns for the streams' position in the landscape, and parent materials.
- Woody debris contributes to the character of the stream channel morphology.

**STANDARD 3:** *Healthy productive plant and animal communities* of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plant and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

Indicators:

- Noxious weeds and undesirable species are minimal in the overall plant community.
- Native plant and animal communities are spatially distributed across the landscape with a density, composition, and frequency of species suitable to ensure reproductive capability and sustainability.
- Plants and animals are present in mixed age classes sufficient to sustain recruitment and mortality fluctuations.
- Landscapes exhibit connectivity of habitat or presence of corridors to prevent habitat fragmentation.
- Photosynthetic activity is evident throughout the growing season.
- Diversity and density of plant and animal species are in balance with habitat/landscape potential and exhibit resilience to human activities.
- Appropriate plant litter accumulates and is evenly distributed across the landscape.
- Landscapes are composed of several plant communities that may be in a variety of successional stages and patterns.

**STANDARD 4:** *Special status, threatened and endangered species* (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Indicators:

- All the indicators associated with the plant and animal communities standard apply.
- There are stable and increasing populations of endemic and protected species in suitable habitat.
- Suitable habitat is available for recovery of endemic and protected species.

**STANDARD 5:** *The water quality* of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado, Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and antidegradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303© of the Clean Water Act.

Indicators:

- Appropriate populations of macroinvertebrates, vertebrates, and algae are present.
- Surface and ground waters only contain substances (e.g., sediment, scum, floating debris, odor, heavy metal precipitates on channel substrate) attributable to humans within the amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado (5 CCR 1002-8).

### **Colorado Livestock Grazing Management Guidelines**

1. Grazing management practices promote plant health by providing for one or more of the following:
  - Periodic rest or deferment from grazing during critical growth periods;
  - Adequate recovery and regrowth periods; and
  - Opportunity for seed dissemination and seedling establishment.
2. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency and intensity of grazing use and livestock health.
3. Grazing management practices maintain sufficient residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, to assist in maintaining appropriate soil infiltration and permeability, and to buffer temperature extremes. In riparian areas, vegetation dissipates energy, captures sediment, recharges ground water, and contributes to stream stability.
4. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required, on land treatment efforts, emphasis will be placed on using native plant species. Seeding of non-native species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals and noxious weeds on the site, and composition of non-natives in the seed mix.
5. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland soils.
6. Grazing management will occur in a manner that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of

weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds.

7. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, and thus minimizing habitat fragmentation.
8. Colorado Best Management Practices and other scientifically developed practices that enhance land and water quality should be used in the development of activity plans prepared for land uses.

**STANDARDS FOR PUBLIC LAND HEALTH  
AND  
GUIDELINES FOR GRAZING MANAGEMENT  
IN UTAH**

**Standards for Rangeland Health**

**Standard 1:** *Upland soils* exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate, and landform.

Indicators:

- Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.
- The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies.
- The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) Desired Plant Community [DPC], where identified in a land use plan, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological conditions.

**Standard 2:** *Riparian* and wetland areas are in properly functioning condition. Stream channel morphology and functions are appropriate to soil type, climate, and landform.

Indicators:

- Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events. Vegetative cover adequate to protect stream banks and dissipate streamflow energy associated with high-water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.
- Vegetation reflecting: Desired Plant Community, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover and other habitat needs for dependent animal species.
- Revegetating point bars; lateral stream movement associated with natural sinuosity; channel width, depth, pool frequency and roughness appropriate to landscape position.
- Active floodplain.

**Standard 3:** *Desired species*, including native, threatened, endangered, and special-status species, are maintained at a level appropriate for the site and species involved.

Indicators:

- Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival.
- Habitats are connected at a level to enhance species survival.
- Native species reoccupy habitat niches and voids caused by disturbance unless management objectives call for introduction or maintenance of non-native species.
- Appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community [DPC], where identified in a land use plan conforming to these standards, or (2) where the DPC is identified a community that equally sustains the desired level of productivity and properly functioning ecological processes.

**Standard 4:** BLM will apply and comply with *water quality* standards established by the State of Utah (R.317-2) and the Federal Clean Water and Safe Drinking Acts. Activities on BLM Lands will fully support the designated beneficial uses described in the Utah Water Quality Standards (R.317-2) for surface and groundwater (BLM will continue to coordinate monitoring water quality activities with other Federal, State, and technical agencies).

Indicators:

- Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other quality parameters.
- Macro-invertebrate communities that indicate water quality meets aquatic objectives.
- 

### **Guidelines for Grazing Management**

1. Grazing management practices will be implemented that:

- Maintain sufficient residual vegetation and litter on both upland and riparian sites to protect the soil from wind and water erosion and support ecological functions;
- Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and infiltration, and appropriate soil conditions and kinds and amounts of plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow.
- Meet the physiological requirements of desired plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow;
- Maintain viable and diverse populations and plants and animals appropriate for the site;
- Provide or improve, within the limits of site potentials, habitat for Threatened or Endangered Species;
- Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species;



- Encourage innovation, experimentation and the ultimate development of alternatives to improve rangeland management practices;
  - Give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving the Standards.
2. Any spring or seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wild horse and wildlife distribution.
  3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.
  4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland areas or other permanently located, or other natural water sources. It is recommended that the locations of these supplements be moved every year.
  5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands nonintrusive, nonnative plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as nonnative species, and/or (d) cannot compete with already established native species.\
  6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire and intensive grazing, will be utilized prior to the use of chemical or mechanical manipulations.
  7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites and opportunities for solitude are among those considerations.
  8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements) for the purpose of substituting for inadequate natural forage will not be conducted on BLM lands other than in (a) emergency situations where no other resource exists and animal survival is in jeopardy, (b) situations where the Authorized Officer determines such a practice will assist in meeting a Standard or attaining a management objective.
  9. In order to eliminate, minimize, or limit the spread of noxious weeds, (a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM lands, and (b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.
  10. To avoid contamination of water sources and inadvertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of riparian/wetland areas unless the product is registered for such use by the EPA.

11. On rangelands where a standard is not being met, and conditions are moving toward meeting the standard, grazing may be allowed to continue. On lands where standard is not being met, conditions are not improving toward meeting the standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Officer pursuant CFR 4180.2(c).
12. Where it can be determined that more than one kind of grazing animal is responsible for failure to achieve a standard, and adjustments in management are required, those adjustments will be made to each kind of animal, based on interagency cooperation as needed, in proportion to their degree of responsibility.
13. Rangelands that have been burned, reseeded or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows: (1) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for a minimum of one complete growing season following the burn; and (2) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons.
14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a standard, or they are not in conflict with BLM land use plans, the conversion will be allowed.

**PROPER FUNCTIONING CONDITION DEFINITIONS**

- Riparian areas are functioning properly (PFC) when there is adequate vegetation and landform structure present to dissipate stream energy from high flows, thereby reducing erosion and improving water quality, filtering sediment, aiding floodplain development, improving flood water retention and ground water recharge, developing root masses that stabilize stream banks against cutting action, developing pools and channel characteristics necessary for fish production (where applicable) and other uses, and supporting greater biodiversity.
- Riparian areas are functional-at-risk (FAR) when they are functioning properly but an existing soil, water, or vegetative attribute make them susceptible to degradation.
- Non-functioning (NFC) are streams where the lack of floodplain and riparian vegetation reduce the streams' ability to dissipate water energy; thus, every major flow event can have serious impacts such as down-cutting, and excessive siltation.

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